Research Summaries 2

Impact of Days on Feed at BRD Identification on Animal Health and Performance Outcomes

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Introduction

Bovine Respiratory Disease (BRD) is the most common and economically detrimental disease of cattle during the post-weaning phase. Very little published information is available describing differences in subsequent performance based on the day when an animal is first identified and treated for BRD. The objective of this research is to determine whether animal performance and health outcomes are associated with when the animal was treated for respiratory disease.

Materials and Methods

Individual animal performance, health, and carcass records of 31,131 calves from 2001 through 2006 that were treated for respiratory disease at a Midwestern feedlot were acquired for the study. In order to eliminate the variation due to market conditions related to season or time, an econometric model was created to calculate an individual animal net return reflecting only differences in cattle health and performance. Individual net returns were calculated using the individual arrival weight, days on feed, number of treatments, average daily gain, and carcass characteristics, and a ten year average was used for feeder prices and grid premium/discounts. Treatment cost, processing, yardage, and feed cost were standardized across all cattle. The model generated an estimated net return figure that allowed for comparison between animals based on differences in health and performance rather than the feeder or fed market conditions associated with a specific time frame. Linear mixed models were used to investigate potential differences in net returns based on days on feed at first pull while accounting for the sex, arrival pen, arrival weight, and month/year the animals entered the feedlot. We created independent models for the seven arrival weight groups to account for the interaction between weight and days on feed at first pull. Differences in net returns were evaluated by comparing model generated least square means for the days on feed at first pull, which was categorized by week post-arrival.

Results

Days on feed at first pull was significantly associated with health and performance as judged by net returns ($P<0.01$), and this effect did not differ by sex, but was different by weight class ($P<0.05$). Several lighter weight classes exhibited significantly lower net returns ($P<0.05$) early in the feeding period (day 0-7), while heavier weights experienced significantly lower net returns ($P<0.05$) late in the feeding period (>50 days).

Significance

Respiratory disease is the most important disease in a feedlot, and the performance impact of when it is first identified has not been evaluated. This research provides evidence that there are differences in health and performance associated with when, relative to arrival, the animal is first treated for respiratory disease, and that this effect depends on the arrival weight class. Further research should quantify why these differences exist.